WHAT IS CLAIMED IS

1. A method of producing a transgenic plant having an improved agronomic or nutritional characteristic, which method comprises:

I) identifying a transgenic plant overexpressing a nitrogen assimilation/metabolism enzyme from among transgenic plants having a gene construct comprising a gene encoding a nitrogen assimilation/metabolism enzyme operably linked to a plant promoter so that the nitrogen assimilation/metabolism enzyme is ectopically overexpressed in transgenic plants,

II) screening the transgenic plant overexpressing the nitrogen assimilation/metabolism enzyme for an improved agronomic or nutritional characteristic under nitrogen non-limiting growth conditions, and

III) selecting the transgenic plant having an improved agronomic or nutritional characteristic;

wherein the nitrogen assimilation/metabolism enzyme is aspartate aminotransferase, glutamate 2-oxoglutarate aminotransferase, glutamate dehydrogenase, asparaginase, eukaryotic asparagine synthetase or cytosolic glutamine synthetase, and the improved agronomic or nutritional characteristic of the transgenic plant is a:

i) faster rate of growth,

ii) greater fresh or dry weight at maturation,

iii) greater fruit or seed yield,

iv) greater total plant nitrogen content,

v) greater fruit or seed nitrogen content,

vi) greater free amino acid content in the whole plant,

vii) greater free amino acid content in the fruit or seed,

viii) greater protein content in seed or fruit, or

ix) greater protein content in a vegetative tissue,

than that of a progenitor plant which does not contain the gene construct, when the transgenic plant having the improved agronomic or nutritional characteristic and the progenitor plant are cultivated under identical nitrogen non-limiting growth conditions.

2. The method of claim 1, wherein the plant promoter is a strong, constitutively expressed plant promoter.

3. The method of claim 2, wherein the plant promoter is CaMV 35S promoter.

4. The method of claim 3, wherein the nitrogen assimilation/metabolism enzyme is eukaryotic asparagine synthetase or cytosolic glutamine synthetase.

5. The method of claim 4, wherein the nitrogen assimilation/metabolism enzyme is root-specific glutamine synthetase.

6. The method of claim 1, wherein the gene construct is the 35S-GS gene construct of pZ3, pZ9, or pZ17.

7. The method of claim 1, wherein the gene construct is the 35S-AS gene fusion of pZ127.

8. A transgenic plant having a gene construct comprising a gene encoding a nitrogen assimilation/metabolism enzyme operably linked to a plant promoter so that the nitrogen assimilation/metabolism enzyme is ectopically overexpressed in the transgenic plant, and the transgenic plant exhibits:

i) faster rate of growth,

ii) greater fresh or dry weight at maturation,

iii) greater fruit or seed yield,

iv) greater total plant nitrogen content,

v) greater fruit or seed nitrogen content,

vi) greater free amino acid content in the whole plant,

vii) greater free amino acid content in the fruit or seed,

viii) greater protein content in seed or fruit, or

ix) greater protein content in a vegetative tissue,

than a progenitor plant which does not contain the gene construct, when the transgenic plant and the progenitor plant are cultivated under identical nitrogen non-limiting growth conditions, wherein the nitrogen assimilation/metabolism enzyme is aspartate aminotransferase, glutamate 2-oxoglutarate aminotransferase, glutamate dehydrogenase, asparaginase, eukaryotic asparagine synthetase or cytosolic glutamine synthetase.

9. The transgenic plant of claim 8, the plant promoter is a strong, constitutively expressed plant promoter.

10. The transgenic plant of claim 9, wherein the plant promoter is CaMV 35S promoter.

11. The transgenic plant of claim 10, wherein the gene construct is the 35S-GS gene construct of pZ3, pZ9, or pZ17.

12. The transgenic plant of claim 8, wherein the nitrogen assimilation/metabolism enzyme is cytosolic glutamine synthetase.

13. The transgenic plant of claim 9, wherein the nitrogen assimilation/metabolism enzyme is root-specific glutamine synthetase.

14. A seed of the transgenic plant of any one of claims 8 to 13, wherein the seed has the gene construct.

15. A progeny, clone, cell line or cell of the transgenic plant of any one claims 8 to 13 wherein said progeny, clone, cell line or cell has the gene construct.

16. A method of producing a transgenic plant having a suppressed level of glutamine synthetase activity, which method comprises:

i) identifing a transgenic plant having the suppressed level of glutamine synthetase activity from among transgenic plants having a gene construct comprising a gene encoding glutamine synthetase operably linked to a plant promoter, and

ii) selecting the transgenic plant having the suppressed level of glutamine synthetase activity,

wherein the suppressed level of glutamine synthetase

activity is lower than the level of glutamine synthetase activity in an identically cultivated progenitor plant which does not contain the gene construct.

17. The method of claim 16, wherein the gene encoding glutamine synthetase encodes chloroplastic glutamine synthetase.

18. The method of claim 16, wherein the gene construct is the 35S-GS fusion of pZ41 or pZ54.

19. A method of producing a plant with a suppressed level of asparagine synthetase by engineering the plant for ectopic overexpression of an inactive asparagine synthetase, wherein the suppressed level of asparagine synthetase is in comparison with identically cultivated unengineered, progenitor plant; and the engineering of the plant comprises

i) transforming the plant with a gene fusion that confers ectopic overexpression of an inactive asparagine synthetase,

ii) selecting or identifying the transformed plant based on the trait conferred by a marker gene linked to said gene fusion,

iii) screening the transformed plant for an abnormally low level of asparagine synthetase, and

iv) selecting the transformed plant with an abnormally low level of asparagine synthetase.

20. The method of claim 19, wherein the gene fusion is the 35S-AS fusion of pZ167.